

INTEVIEW SUMMARY

A telephonic interview was held on September 16, 2008. The Applicant amended a number of claims. The Examiner agreed to review the amended claims and remarks upon receipt of formal response to the Office Action mailed June 30, 2008.

REMARKS/ARGUMENTS

A number of claims have been amended to overcome the 35 U.S.C. 101 rejection cited by the Examiner. The Applicants believe that the amended claims are now in compliance with the requirements of 35 U.S.C. 101.

The office action rejected claims 1, 13, 18, 23 and 27 under 35 U.S.C. 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The Applicants believe that the above amendments to the claims have addressed this issue.

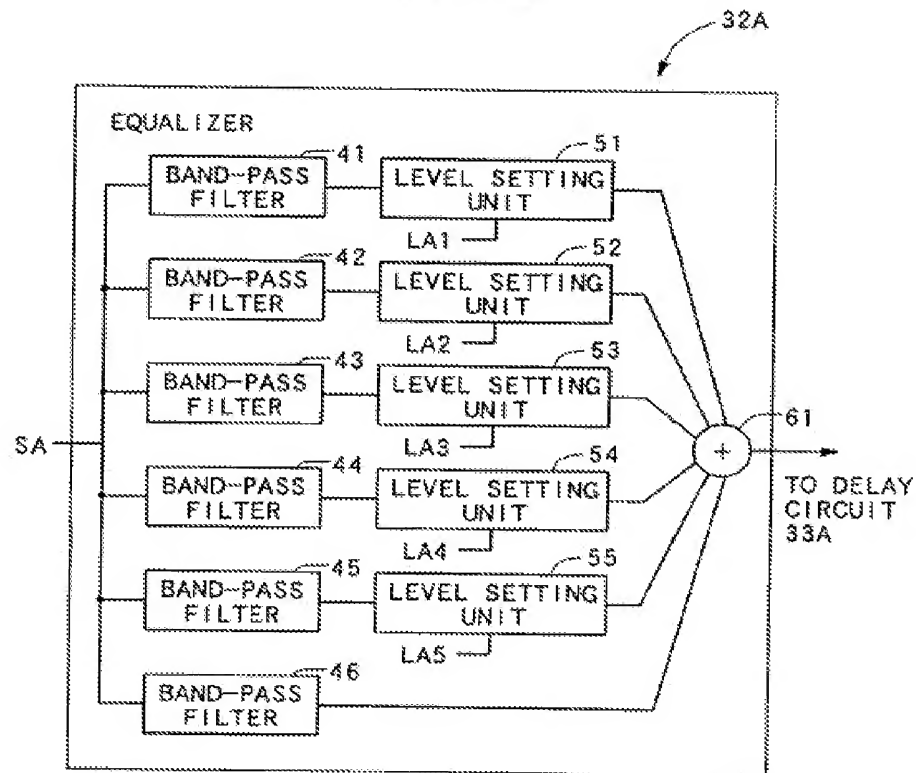
The office action rejected claims 1, 4-5, 9, 11, 18 and 23 under 35 U.S.C. 102(e) as being anticipated by Yoshino (2004/0071299).

Yoshino essentially discloses an n-band graphic equalizer in a multichannel audio system. Yoshino is not concerned with the computing resources required to implement its graphic equalizer. However, this invention discloses approximating an n-band graphic equalizer in such a way that it can be implemented on a device with limited computing resources, such as a portable media player. It does this by using a set of predetermined filters with known waveforms. These predetermined filter waveforms are compared to the composite waveform of the n-band graphic equalizer settings associated with a media item. The m most accurately matching predetermined filters are then used to represent the n-band graphic equalizer settings on the device with limited computing resources, where m is less than n.

By way of an example, Yoshino discloses a graphic equalizer that would be a component in a multichannel home theatre system with a number of filters at least equal to the number of bands in the equalizer (see Fig. 8 below) showing an equalizer in accordance with Yoshino (in this case equalizer 32A) having band pass filters 41 – 46 each dedicated to a specific range of frequencies broken into, in this example, 6 frequency bands (at paragraph

[156], “Each of the band pass filters 41 to 46 are configured to pass only signal components at frequencies falling into each of predetermined frequency bands formed by dividing the entire frequency band owned by the audio signal SA”). At no point does Yoshino even remotely suggest (unlike the invention) that any attempt is made to configure the equalizer 32A with the six frequency bands using fewer than 6 band pass filters. In other words, for n frequency bands, n band pass filters are used.

FIG. 8



In contrast to Yoshino, the invention teaches approximating an n-band equalizer using m predetermined filter types where m is less than n. In particular, amended claim 1 recites:

A method for approximating an n-band graphic equalizer having n-band graphic equalizer settings associated with a media item using not more than m predetermined filter types, wherein each filter type is characterized as

having a known frequency response shape, where m is less than n , said method comprising:

(a) classifying the n -band graphic equalizer settings by comparing a composite frequency response shape representing the n -band graphic equalizer settings with at least a portion of the frequency response shape of one or more of a plurality of predetermined filter types;

(b) determining parameters for the one or more of the predetermined filter types used to classify the equalizer settings;

(c) assigning a priority to each of the one or more predetermined filter types used in the classification wherein the assigned priority is based on weighting values associated with each of the one or more predetermined filter types; and

(d) approximating the n -band equalizer by selecting no more than m predetermined filter types having the highest priority.

The Applicants believe that claim 1 is not anticipated by Yoshino for at least the reasons stated above. Claims 13, 18, and 27 recite essentially the same limitations as claim 1 and are also believed to be allowable. All dependent claim depend either directly or indirectly from independent claims 1, 13, 18, and 27 and are therefore also believed to be allowable.

The Examiner also rejected claims 23-26 under 35 U.S.C. 102(b) as being anticipated by Ecklund et al. (U.S. 5,524,290). The office action contends that Ecklund discloses a system for approximating an n -band graphic equalizer using not more than m filters where m is less than n (col. 3, lines 27-31). However, Ecklund discloses an n -band graphic equalizer using n band-pass filters to separate the signal into the n -bands represented on the graphic equalizer. An example given is a 5-band graphic equalizer where 5 band-pass filters are used to separate the signal into the 5 bands corresponding to center frequencies of 85 Hz, 240 Hz, 700 Hz, 2.4 kHz and 6.2 kHz for an AM radio broadcast (Ecklund col. 4, lines 2-6). The instant invention explicitly states that it uses m filters where m is less than n , but Ecklund explicitly states that it uses n filters. That is a clear difference and Applicants believe it makes claim 23 of the instant invention patentably distinct from Ecklund.

Additionally, the office action states that Ecklund discloses a means for assigning a priority to each of the one or more filters in the classification and a means for limiting the number of the one or more filters in the classification to not more than m based on the priority assigned to each of the plurality of the predetermined filter types in the classification (col. 3, lines 57-61). However, Ecklund makes no mention of prioritizing the filters or limiting the number of filters based on the priority of the filters. In fact, as discussed above,

Ecklund does not limit the filters to m, but rather uses all n band-pass filters. For at least these reasons, Applicants believe that claim 23 is not anticipated by Ecklund.

The office action rejects claims 7-8, 12-17 and 22 under 35 U.S.C. 103(a) as being unpatentable over Yoshino (2004/0071299) in view of Wiser et al. (U.S. 7,016,746) that does nothing to ameliorate the deficiencies of Yoshino. Therefore, Yoshino and Wiser et al in any combination is not believed to render any of the pending claims unpatentable under 35 U.S.C. 103(a).

The office action rejects claim 10 under 35 U.S.C. 103(a) as being unpatentable over Yoshino (2004/0071299) in view of Montag et al. (2004/0032959). The office action contends that it would be obvious for one of ordinary skill in the art at the time the invention was made to modify the graphic equalizer of Yoshino with the recursive filters of Montag to ensure spectrally balanced sound as taught by Montag (paragraph 7, line 9). Claim 10 depends on claim 1. As discussed above, Yoshino does not teach a graphic equalizer as disclosed in claim 1. For at least this reason, modifying the graphic equalizer in Yoshino with the recursive filters of Montag to ensure spectrally balanced sound as taught by Montag would not make claim 10 of the instant invention obvious.

In view of the foregoing, it is believed that all pending claims are allowable and applicants respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Should any fee be required for any reason related to this document, the Commissioner is hereby authorized to charge said fee to Deposit Account No. 504481, referencing Docket No. APL1P306.

Respectfully submitted,
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